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ABSTRACT

The University of North Carolina (UNC) Mathematics and Science Education Network (MSEN) Pre-College program is designed to increase the number of historically underrepresented students--minorities and females--who have sufficient interest and preparation to pursue mathematics and science fields at the university level, and to move into careers in science, mathematics, technology, engineering, and teaching. The Pre-College Program provides students in grades 6-12 with rigorous academic enrichment activities aimed at improving their science, mathematics, and communication skills. This status report of the MSEN Pre-College Program includes: (1) a message from MSEN; (2) a program summary; (3) a list of participating schools; (4) evaluation of program success including test scores and student educational goals; (5) lists of role models, speakers, teachers, field trips, and a description of several program events including MSEN Pre-College Day and Leadership Retreat; (6) a list of student awards; (7) a list of 1995 Pre-College graduates; and (8) a description of future plans. Extra items include a list of funding sources, a 1995 Pre-College Program Graduate Survey, and a description of the William Randolph Hearst Foundation Pre-College Endowment. (PVD)

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UNC MSEN Pre-College Program
1995 Status Report

University of North Carolina Mathematics and Science Education Network

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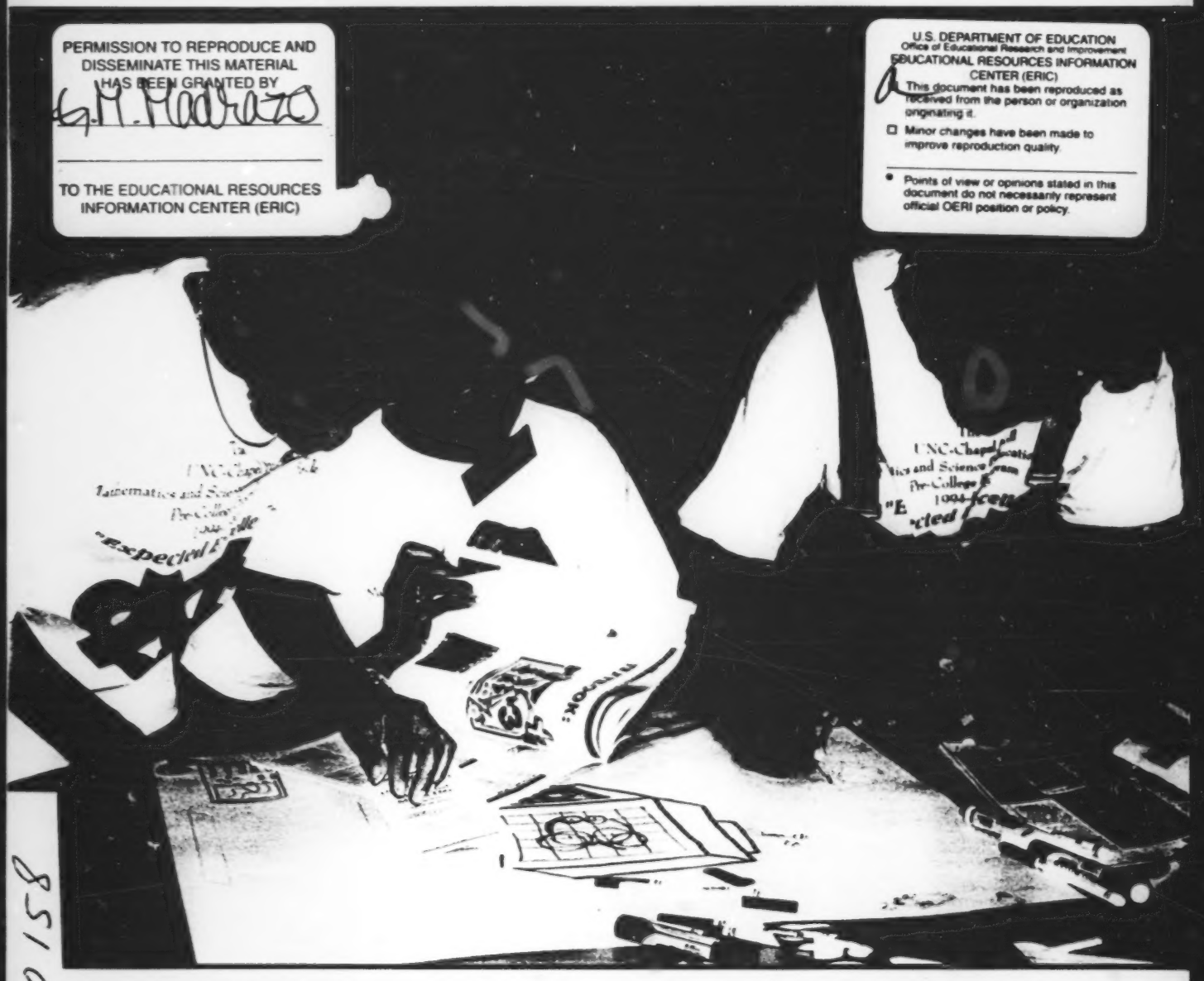

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UNC Mathematics and Science Education Network

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1995 Pre-College Program Status Report

UNC Mathematics and Science Education Network

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A Message from the Advisory Board

The MSEN Pre-College Program plays a critical role in educating the citizens of North Carolina. As Pre-College enters its tenth year, we can look back on almost a decade of progress towards our goal of "increasing the number of historically underrepresented students who pursue mathematics- and/or science-based fields of study at the university level." This year's Status Report provides telling evidence of the achievements of the faculty, staff, and students involved in the program.

Mary Floyd, Pre-College Advisory Board Chair

The Pre-College Program offers an exciting and challenging array of activities for middle school and high school students. It encourages students at a critical age to envision rewarding future careers for individuals trained in mathematics and science. As in past years, more than 60 percent of the 1995 Pre-College graduates who attend college are pursuing mathematics- or science-based fields of study.

The state of North Carolina can benefit significantly from broadening the pool of its citizens educated in mathematics and science. Indeed, these fields provide the foundation for the technology-driven workplace of the future. Increasing the number of women and minorities in these fields strengthens the intellectual foundation that supports the workplace, which in turn fuels the growth and progress of the state. As we look to creating a more diverse and progressive economy, we must utilize the skills and talents of all of our citizens.

The MSEN Pre-College Advisory Board gives a special thanks to the program staff, teachers, and students who have made the Pre-College Program a model of achievement in academic enrichment. We look forward to another successful year.

A Message from MSEN

Since 1986, the MSEN Pre-College Program has been preparing middle and high school students to achieve high standards in mathematics and science, and without a doubt, 1995 has proved itself a banner year. In the past year MSEN and the Pre-College Program have experienced changes in leadership and a move to a new location. We are excited about working with the outstanding coordinators, students, teachers, parents, and school administrators, as well as with business and industry leaders who serve on our Advisory Board. Most of the experiences of the past year are highlighted in the 1995 Status Report.

Gerry Madrazo Executive Director MSEN

The Pre-College Program is thriving due to the active concern, involvement, and support to enhance the mathematics and science learning experience of the students. Working together, the coordinators, teachers, and parents are striving to empower students to recognize that they must take responsibility for their future and to graduate from high school prepared to succeed in college and graduate with a degree in mathematics, science, or education.

As we enter our tenth year, we can note that we have continually strengthened the programs we offer in order to better prepare our graduates for the work-force of the twenty-first century. The coordinators as well as the students are using technology both to improve communication between sites and to strengthen the instructional components of the Pre-College Program. During 1995, all six pre-college sites came on-line for video-conferencing and electronic mail.

Our Status Report reflects the breadth of support and services the MSEN Pre-College Program has received from government, universities, school systems, teachers, parents, volunteers, and business and industry. These extensive collaborative efforts not only help us to offer programs and activities of the highest quality, they also help insure that Pre-College Program students understand the connections between what they do in the classroom and what they may do later in their lives.

With your guidance and continued support, working together, we can persevere in offering a rigorous, challenging Pre-College Program for underrepresented students who are willing to work hard and succeed in mathematics and science. We are proud of the accomplishments of all the participants in the MSEN Pre-College Program. We need to continue to work together to enhance student achievement so they will be productive citizens in the future.

Program Summary

Mission

The University of North Carolina Mathematics and Science Education Network (MSEN) Pre-College Program is designed to increase the number of historically underrepresented students – minorities and females – who have sufficient interest and preparation to pursue mathematics and science fields at the university level and to move into careers in science, mathematics, technology, engineering, and teaching.

Components

The Pre-College Program provides students in grades 6-12 with rigorous academic enrichment activities aimed at improving their science, mathematics, and communication skills. The program also works with teachers of these students in order to increase teacher knowledge of science and mathematics and to increase teachers' awareness of the particular needs of underrepresented students. The components of the Program include:

In-School Programs in the middle schools are offered through Academic Enrichment Classes. The elective classes are offered daily to all middle school MSEN Pre-College students. The instruction involves hands-on experiences in mathematics and science labs, experiential learning through field trips, individualized tutoring, and counseling about course selection and career activities, such as discussions with engineers and scientists. High school students participate in the Academic Chapters for Excellence (ACE) Clubs, which provide peer support groups for those interested in achieving high academic performance in science and mathematics.

Saturday Academy sessions are held on the six UNC campuses during the school year. There are 10 to 20 sessions scheduled every year at each of the participating sites. Each Saturday, students rotate through four classes: mathematics, science, communication skills, and self-esteem/career awareness. The instructors include university faculty, public school teachers, business people, and scientists from the area. The topics covered enrich and support the classes the students are taking in school. The intent is to expose the students to ideas and concepts that may be missing from the regular curriculum or that may stimulate their career interests.

Summer Scholars is an on-campus program held at the six sites during the summer. It meets Monday through Friday, for 100 class hours. As in the case of the Saturday Academies, students rotate through a schedule of classes, but a greater variety of topics and activities are offered. Classes take field trips to businesses, museums, and other campuses in the area. MSEN has received National Science Foundation Young Scholars funding to support university faculty and enrichment activities in the middle school portion of the Summer Scholars program.

Parents Involved for Excellence (PIE) – a parent outreach program – is one of the most important components of the MSEN Pre-College Program. Each participating school has a PIE Club to support its Pre-College students. Parents are consulted in the planning of program activities and asked to support those activities by helping raise funds within each school and by assuring that their students participate fully in all program activities. The support of parent volunteers is essential in operating the major programs such as Saturday Academy and Summer Scholars and in carrying out field trips. Regular meetings, newsletters, and telephone trees are used to keep parents abreast of program news and needs.

Teachers associated with the MSEN Pre-College Program receive intensive inservice education to use methods and materials to attract and retain minority and female students in science and mathematics courses, to extend their knowledge of mathematics and science, and to teach them how to establish bias-free classrooms.

Leadership and Career Awareness Activities are featured in all components of the program. Career counseling, role-model speakers, and field trips help make students aware of the opportunities available to them.

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Participating Schools

	Elementary	Junior/Middle Schools	High Schools
Elizabeth City State University	Gatesville C.G.* H.L. Trigg T.S. Cooper Sheep Harney	Camden M.S. Central M.S. Chowan M.S.* Elizabeth City M.S. Hertford County M.S.* Perquimans M.S. Southwestern M.S.* White M.S.	Bertie County H.S.* Gates County H.S. John A. Holmes H.S. Hertford County H.S. Northeastern H.S.* Perquimans H.S.
Fayetteville State University		Westover J.H.S.*	Bing Forest Sr. H.S. Douglas Byrd Sr. H.S. Westover Sr. H.S.
NC A&T State University		Aycock M.S. Ferndale M.S. Griffin M.S. Kiser M.S. Lincoln M.S. Welborn M.S.	Dudley H.S. Grimsley H.S. High Point Central H.S. Page H.S. T.W. Andrews H.S.
North Carolina State University		Carnage M.S.* East Milbrook M.S.* Leesville M.S. Ligon M.S. Smithfield/Selma M.S. Wake Forest/Rolesville M.S.*	Athens Drive H.S. Broughton H.S.* Enloe H.S. Wake Forest/Rolesville*
UNC-Chapel Hill		Brogden M.S. Carrington M.S. Chewning M.S.* Culbreth M.S.* Githens M.S. Lowe's Grove M.S.* McDougle M.S. Neal M.S.* Philips M.S. Rogers-Herr M.S. Shepard Magnet Stanback M.S. Stanford M.S.	Chapel Hill H.S.* Durham H.S. Hillside H.S. Jordan H.S. Northern H.S. Riverside H.S.* Southern H.S.*
UNC-Charlotte		Anson J.H.S.* Cochrane M.S.* Coulwood M.S. Concord M.S.* East Lincoln M.S. Eastway M.S. Hawthorne Traditional M.S. J.T. Williams M.S. Kannapolis M.S. Lincolnton M.S. Marie G. Davis M.S. Northern Christian Academy Northwest M.S.* N.W. Cabarrus M.S. Piedmont Open M.S. Providence Day Randolph M.S. Ranson M.S.* Spaugh M.S. West Lincoln M.S. Wilson M.S.	A.L. Brown H.S. Anson H.S. Concord H.S. East Lincoln H.S. East Mecklenberg H.S. Garinger H.S.* Harding University H.S. Independence H.S. Lincolnton H.S. N.W.Cabarrus H.S.* N.Mecklenburg H.S. Myers Park H.S. Victory Christian Center West Charlotte H.S.* West Lincoln H.S. West Mecklenburg H.S.*

** Grades and test scores of Pre-College students were collected from a random sample of all participating schools; sampled schools are marked with *.*

Program Coordinators

Leon Rouson

Elizabeth City State University

The highlights of the 1994-95 year at ECSU included increased enrollment in the MSEN Pre-College Program, two students enrolled at the NC School of Science and Mathematics, over 90% student participation rate for all programs and activities, three new courses added to the Saturday Academy curriculum, and the only Pre-College Program with a residential Summer Scholars program. MSEN students also placed in more than half of the competitions at the annual MSEN Day. These experiences have motivated all of our graduating seniors to enter college on scholarships (including one who received the Morehead Scholarship from UNC-Chapel Hill), and major in such areas as mathematics, science, education, technology, and Engineering.

Fayetteville State University

Patricia Murray

"Striving for Excellence," the theme for the MSEN Pre-College Program has certainly been the focal point and destination for the Program at Fayetteville State University. Over the past 5 $^{1}/_{2}$ years, FSU has grown from 100 students to approximately 239 students, from 7-9 grade students to 6-12 grade students, from academic enrichment in middle school mathematics and science, to enrichment including electrical engineering/robotics/biotechnology, conceptual mathematics through Calculus, and computer science using Turbo Pascal. Strengthening the academic program by providing new challenges and technological advances will remain a priority at FSU.

North Carolina A&T State University

Rita Fuller

The MSEN Pre-College Program at the Greensboro Area Mathematics and Science Education Center (GAMSEC) is located on the campus of North Carolina A&T State University. The students enrolled in the program are from 11 middle and high schools in Guilford and surrounding counties. Highlights from the year include Awards and Recognition Programs where students were recognized for outstanding academic performance; Open House for parents and students; parent workshops; new course offerings; participation in the Educational Testing Program; and numerous field trips. Students also competed in statewide mathematics and science competitions during the year. Of the 41 graduating seniors, all will continue their education, with 40 enrolling at four year institutions of higher education. The year concluded with an Awards Program in July, 1995.

Caroyn Tyson

North Carolina State University

The MSEN Pre-College Program at North Carolina State University completed an overall challenging yet successful ninth year. There were ten schools that actively participated. About 450 students were challenged by university professors, public school instructors, scientists, engineers, entrepreneurs, and college students throughout the 1994-95 school year. Of the 49 seniors, 45 will be attending four-year colleges and 21 will be majoring in a math- or science-related field. The program provided inspiration, motivation, increased self-esteem, and confidence to our students. Many opportunities for careers were explored through our assembly programs, and through the many role models that visited their classes. Approximately 105 students attended Summer Scholars Program this year.

University of North Carolina at Chapel Hill

The University of North Carolina at Chapel Hill MSEN Pre-College Program continues going strong, and many new programs are being launched. As of this year, we have again topped 1,200 students in the program – and we are "truly wonderful and getting better." Why do students express so much interest in joining the UNC-Chapel Hill Pre-College? A large part is a genuine enthusiasm for activity-based science and mathematics. In addition, our model Pre-College Program helps to meet a key and deeply felt need of high expectations for student achievement. We are pleased to serve students from Orange County, Durham Public, and Chapel Hill-Carrboro City Schools. One of the most rewarding aspects is to see the students taking excellence to another level through Saturday Academies, Summer Scholars, Internships, In-School and After School Activities.

Eric Packenham

Shelia Hinson

University of North Carolina at Charlotte

The University of North Carolina at Charlotte MSEN Pre-College Program affords a valuable opportunity for minorities and females to receive enrichment in mathematics and science to achieve success in college preparatory courses. The 1994-95 Program served about 300 students in grades 7 through 12 from five school systems including Anson, Cabarrus, and Lincoln counties, and Charlotte-Mecklenburg, and Kannapolis City. The students enjoy attending classes in a university setting and take full advantage of available resources including science labs, the library and tutoring services provided by the Tau Beta Pi engineering students. Activities included sheep eyeball and cat dissections and NSF math and science projects.

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Evaluation

Overview and Sampling Procedure

Overview

The evaluative information on the following pages portrays a strong, successful program. High levels of enrollment have been maintained at all sites (Table 1). Students set high educational goals for themselves (Figures 3a and 3b). Their scores on Mathematics End-of-Grade tests exceed the statewide means (Figure 5); and End-of-Course test scores exceed or approach statewide means (Figure 6).

Gathering information

Information is gathered annually to compile this section of the Status Report. In their enrollment and re-enrollment forms, students provide information about themselves, their present school situation, and their future educational and career plans. At the close of the 1994-95 school year, data was submitted by a sample of participating schools to collect information about students' grades and test scores. A survey was also administered to all graduating seniors and to former graduates of the MSEN Pre-College Program. To depict the current status of the program, information from all of these sources has been analyzed and results are presented in the tables and figures that follow.

Sampling procedure

Test score data were collected for a sample of students at randomly selected schools, rather than for all students. Schools that were not sampled last year were chosen to be in this year's sample. Table 1 on the following page lists the total number of students enrolled in the MSEN Pre-College Program during 1994-95 according to their Pre-College site, school district, and grade level. These numbers represent the population from which the data-collection sample was drawn. The random sample, stratified by site, included 50 percent of all participating schools. Information from the enrollment and re-enrollment forms of the population of enrollees was used to develop most of the tables and figures on the following pages; however, sample data were used for Figures 3 through 7, which present information about student course enrollments and their scores on the North Carolina End-of-Course and End-of-Grade tests.

Table 1: Student Enrollment at Each Program Site

SITE	DISTRICT	6th	7th	8th	9th	10th	11th	12th	Dist Total	Site Total
ECSU	Bertie County	15	23	14	11	7	4		74	
	Camden County	1	2	1	1	1			6	
	Edenton-Chowan	5	4	5	3	2	1		20	
	Elizabeth City	1	10	3	3				17	
	Gates County	13	7	6	4	1	1		32	
	Hertford	3	4		2	3	2		14	
	Perquimans County		1	1	1	2			5	168
FSU	Cumberland County	37	67	42	32	29	8	13	228	
	Fort Bragg			1					1	
	Robeson County		2				1		3	
	Private Schools	2	1	3	1				7	239
NCA&T	Guilford County		89	99	79	36	24	33	360	360
NCSU	Johnston County	23	22	19					64	
	Wake County	72	64	73	35	29	53	57	383	447
UNC-CH	Chapel Hill/Carrboro	37	69	47	38	11	11	5	218	
	Durham County	196	229	258	83	103	100	99	1068	1286
UNC-C	Anson County					19			19	
	Cabarrus County		8	14	24	5		2	53	
	Charlotte-Mecklenburg		18	63	47	30	18	25	201	
	Kannapolis City		1	12	12	5	6	6	42	
	Lincoln County		1	5	5	9			20	
	Private Schools		1		1				2	337
	TOTAL ENROLLMENT	405	623	666	382	292	229	240	2837	2837

A total of 2,837 students were enrolled in the MSEN Pre-College Program during the 1994-95 school year. This is a slight decrease from the previous year's enrollment, which was 3,099. In recent years, as enrollment has peaked and stabilized, emphasis has been placed on strengthening the quality of the program versus expanding its scope. Table 1 provides information on grade level, school district, and MSEN Pre-College Sites of the 2,800 plus students who participated in the Program during 1994-95.

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Student Enrollment at Each Grade Level

The student enrollment figures from Table 1 are used in Figure 1 to depict the percentage of students enrolled at each grade level during the 1994-95 school year. Fourteen percent of the 2,837 students enrolled were in sixth grade. The highest enrollments were for seventh and eighth grades: 22 percent in the seventh grade and 24 percent in the eighth grade. Grades 9 to 12 had from 14 to 8 percent of the enrollees.

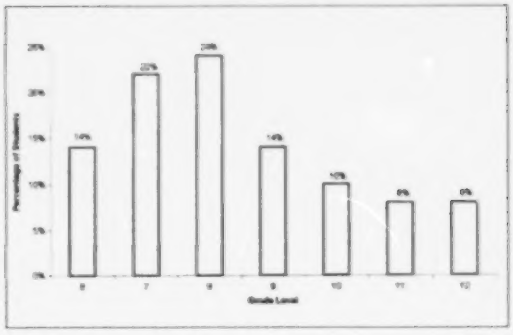

Figure 1. Percentage of Pre-College students enrolled at each grade level during the 1994-95 school year. (Total number of students enrolled in 1994-95=2,837)

Ethnicity and Gender

The ethnicity and gender of students enrolled during the 1994-95 school year are shown in Figure 2. The percentages for ethnicity were: 87 percent African-American, 9 percent white, and 4 percent from other racial/ethnic groups. The percentages for gender were: 67 percent female and 33 percent male.

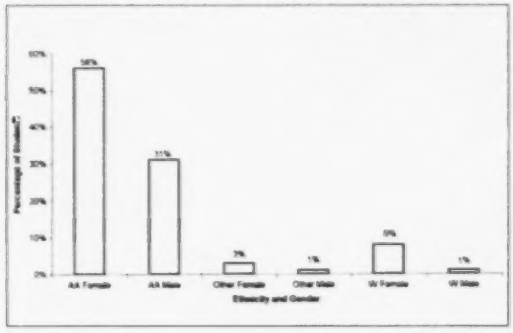

Figure 2. Ethnicity and Gender of Students Participating in the MSEN Pre-College Program during 1994-95. (Total number of students enrolled in 1994-95=2,837.)

Students' Educational Goals

Students in the program set high goals for the educational levels that they plan to reach in the future. Information about their educational goals is presented in Figures 3a and 3b. Figure 3a contains information about the educational goals of the 1,694 middle school students enrolled in 1994-95, and Figure 3b presents information about the 1,143 high school students' goals. In both groups, over 55 percent of students plan to work toward advanced degrees (Master's or Ph.D.), 15 to 20 percent plan to attend four-year colleges, and only 2 to 3 percent plan less than four years of college. Eighteen to 25 percent of middle and high school students reported that they were not yet sure of their future educational goals.

Fifty-nine percent of middle school students (Figure 3a) plan to obtain advanced degrees, either Masters' degrees or Ph.D.s. Twenty percent plan to attend four-year colleges; only 3 percent plan less than four years of college; and 18 percent are unsure of their educational plans.

Fifty-eight percent of the high school students (Figure 3b) plan to obtain Masters' or Ph.D. degrees; 15 percent plan to attend a four-year college. Only two percent plan only a high school diploma or a technical college degree, and 25 percent report that they are not sure about their educational plans.

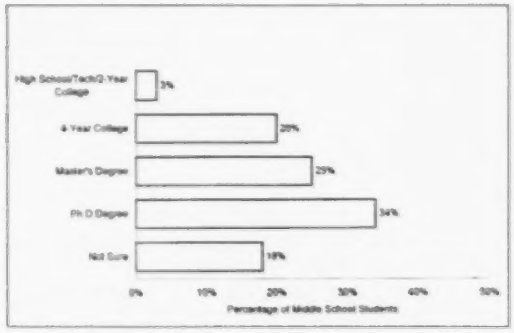

Figure 3a. Educational Goals of 1994-95 Middle School Students in the MSEN Pre-College Program. (Total number of middle school students=1,694).

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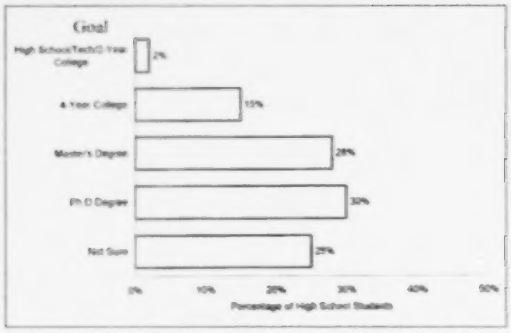


Figure 3b. Educational Goals of 1994-95 High School Students in the MSEN Pre-College Program. (Total number of high school students=1,143.)

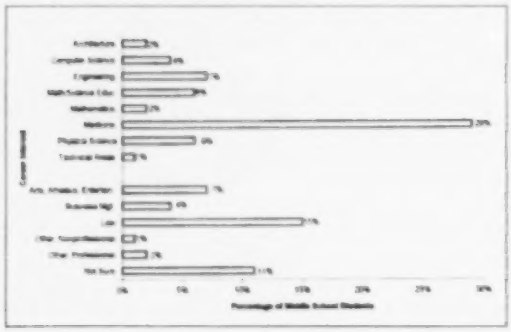


Figure 4a. Career interests of 1994-95 middle school students in the MSEN Pre-College Program (total number of middle school students=1,694).

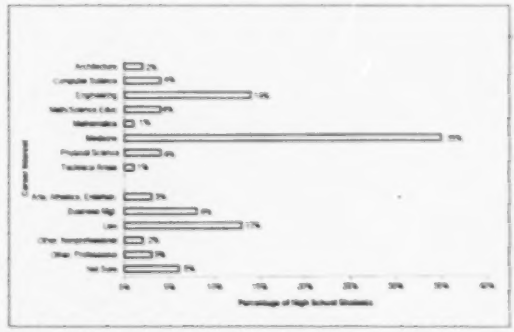


Figure 4b. Career interests of 1994-95 high school students in the MSEN Pre-College Program (total number of high school students=1,143).

Career Interests: Middle and High School

When high school students project educational goals, the future is more imminent than when middle school students set goals for themselves. A similar situation may apply when middle and high school students express their career interests. Consequently, career interests of middle and high school students are presented in separate figures (Figures 4a & 4b). In reviewing these two figures, similarities and differences in choices are apparent. Over 55 percent of the students in both groups selected career interests in mathematics- or science-related fields. And, within mathematics- and science-related fields, between 29 and 35 percent of the students at both levels chose medicine as a career interest. Responses of middle and high school students also diverged for some of the mathematics and science categories. For example, 7 percent of middle school students chose engineering, and 14 percent of high school students made this choice. In fields not directly related to mathematics or science, fairly similar percents of middle (15%) and high school (13%) students chose law, but dissimilar percents chose business management (4% middle school; 8% high school).

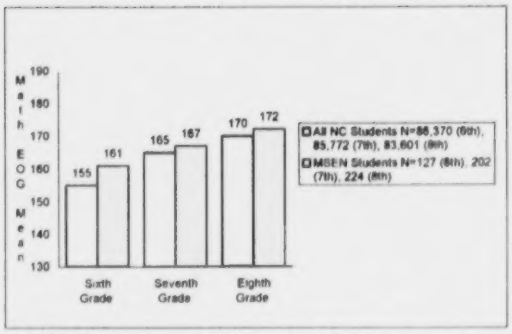
The career interests of middle school students in the MSEN Pre-College Program during 1994-95 are presented in Figure 4a. Fifty-seven percent of the middle school students expressed interest in fields that require backgrounds in mathematics and science, specifically, 29 percent in medicine, 7 percent in engineering, and 21 percent in various related fields. Twenty-nine percent plan careers in fields such as law, business, the arts, athletics, and other professional fields. Eleven percent of the middle school students were unsure of their future career plans.

High school students' career interests are presented in Figure 4b. Sixty-five percent listed career interests in fields that require backgrounds in mathematics and science, specifically, 35 percent in medicine, 14 percent in engineering, and 16 percent in various related fields. Law, business, art, athletics, and other professional fields were listed by 29 percent of the high school students. Ten percent were not sure about their career interests.

End-of- Grade Mathematics Test

At the end of the 1994-95 school year students in grades sixth through eight participated in the North Carolina End-of-Grade Testing Program. Mathematics tests were administered to students in grades six, seven, and eight.

In Figure 5, mean scores of sixth, seventh, and eighth grade Pre-College students at sampled* schools are compared with mean scores for all North Carolina students taking the End-of-Grade Tests in mathematics. At all three grade levels, mean scores of MSEN students exceeded the statewide means. Sixth grade students in the program achieved a mean of 161 compared to a mean of 155 for sixth graders statewide. For seventh graders, the Pre-College Program students' mean score is 167 compared to a seventh grade statewide mean of 165. MSEN eighth graders' mean is 172 versus a mean of 170 for eighth graders statewide.



A random sample of 50% of schools stratified by site.
Figure 5. Scores on the North Carolina End-of-Grade Mathematics Test.

End-of- Course Mathematics Test

Those high school students who complete academic mathematics and science courses are required to take the North Carolina End-of-Course tests in Algebra I, Algebra II, Geometry, Physical Science, Biology, Chemistry, and Physics. A comparison of the mean test scores of students in the Pre-College Program with mean scores of all North Carolina students is shown in Figure 6. In Algebra I, Algebra II, and Physical Science, students in the program achieved mean scores that exceeded statewide means. For Algebra I, the mean of program students was 56, above the statewide mean of 55. The mean score of program students on the Algebra II test was 40, compared to a statewide mean of 39. Pre-College students' mean on the Physical Science test was 47; above the statewide mean of 43. The mean score of Pre-College students who took the Biology test equaled the statewide mean of 56. On the End-Of-Course tests for Geometry, Chemistry, and Physics, the mean scores of students in the program approached but did not exceed the statewide means. On the Geometry test the Pre-College mean was 37 versus a statewide mean of 39. Pre-College students taking the Chemistry test achieved a mean of 37 compared to a mean of 40 for students statewide. On the Physics test, program students scored 35 versus a mean of 40 for students throughout the state.

Total numbers of students at sampled* Pre-College schools who took the various End-of-Course Tests ranged from a high of 109 taking

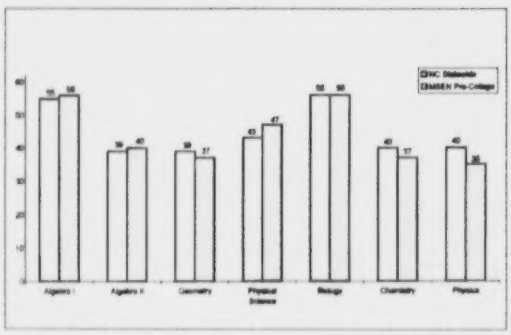


Figure 6. Scores on the North Carolina End-of-Course Tests.

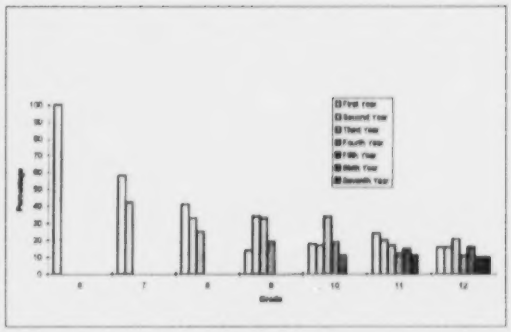


Figure 7. Patterns of participation.

the Algebra I test to a low of 56 taking the Physics test. Numbers of students taking the tests statewide ranged from 68,903 taking the Algebra I test to 10,935 taking the Physics test.

Patterns of Participation

The academic year 1994-95 was the MSEN Pre-College Program's ninth year of operation. Because the program is structured as an open entry/open exit program, students may begin at any grade level from six to twelve and elect to re-enroll in subsequent years until they graduate. Depending on the interests of individual students and the nature of the program at middle or high schools, it may be appropriate for them to re-enroll throughout middle and high school; or they may benefit from just one or two years' participation. A student who enrolled in the program in sixth grade and continued to re-enroll every year through twelfth grade could participate for a total of seven years. Typically, students do not participate for this long, either because the program has met their needs or because, especially in high school, other commitments take precedence. However, as shown in Figure 7, 10 percent of the 240 twelfth graders enrolled during 1994-95 were in their seventh year in the program. On the other hand, 16 percent of the twelfth graders were in their first year. For the years in between, percentages of participation ranged from a low of 10 percent of students in their sixth and seventh years to a high of 21 percent of students in their third program year.

A student in eleventh grade in 1994-95 could have participated for a total of six years; in fact, 11 percent of the 229 eleventh graders in the program were in their sixth year, and 24 percent were in their first year. For two to five years of participation the percentages ranged from a low of 12 percent to a high of 20 percent.

For grades seven through ten, the highest first-year participation rate is in the seventh grade with 58 percent in their first year and 42 percent in their second year. In the eigth grade percentages shift somewhat, but still maintaining the highest percentage for the first year students (41%). In ninth grade, second (34%) and third (33%) year students are the majority. In the tenth grade, third year students are the majority (34%) with first year students dropping to only 18 percent of the class. The lowest first-year participation rate is in the ninth grade with only 14 percent of the students joining the Program that year. Participation for all grades is depicted according to color in figure 7.

Role Models, Speakers and Field Trips

The local coordinators of the MSEN Pre-College Program plan outstanding science and mathematics enrichment activities for students away from the college campus. Students visit local area business and industry sites to see mathematics and science practical applications. They participate in field trips to national and local museums to learn more about current and historical developments of mathematics and science and the role that females and minorities play in this development. They also visit institutions that chronicle social change in the U.S. to better understand the past and to determine what role they, as young people, can have in the future of our nation. Students are given the opportunity to visit local and regional universities in order to be better informed when they are ready to choose their university.

Role models are extremely important for minority and female students. Community leaders and professionals have been very supportive of the students in the MSEN Pre-College Program through their participation in programs at the schools, on the university campus, and at their workplace.

Among the many guest speakers and role models for school year 1994-95 were:

J. Johnson, Quality Assurance Manager, Photo-finishing Laboratory
Michael Hamlin, US-EPA, Engineer
Frederick Thompson, US-EPA, Environmental Specialist
Larry Leise, Electrical Engineer
Josie Bullard, Durham Public School Administrator
Gary Ballance, Law School Student, UNC-Chapel Hill Law School
Alicia Haigler, WCHL Radio Reporter, UNC-Chapel Hill
Lowell Oakley, CPA, Durham, NC
Stephen Clarke, Professor of Biology, UNC-Chapel Hill
Jasper Harris, Director of Summer Ventures, NCCU
Graduate students from Duke University, Dept. of Immunology
Vicki Westbrook, Dept. of Water Resources
Marla Brickman, Biomedical Engineer, Duke University
Carolyn White, Principal, Culbreth Middle School
Walter Weathers, Chemist, EPA
Darryl Roseboro, Police Officer, City of Carrboro
Lillian Wallace, Legal Assistant, DIVI Resorts
Tonya Moore, Student, Martin Luther King, Jr. presentation
Nathan Simms, Vice-President, UNC General Administration
James Schooler, Chemistry Professor, NCCU
Tracy Chang, Undergraduate student, UNC-Chapel Hill
Tue Ngo, Undergraduate student, UNC-Chapel Hill
Mark Slabaugh, Heath Thornton, Christina Seugling, Undergraduate students in Chemistry Depart. ("Chemistry Show")

MSEN Pre-College Day

Nearly a thousand Pre-College students, parents, teachers, and chaperones were in attendance for the 9th annual MSEN Pre-College Day held April 29, 1995 at UNC-Charlotte. Dr. Josephine Wallace, Director of the UNC-Charlotte Mathematics and Science Education Center welcomed every one to Charlotte along with Dr. William McCoy, Associate Vice Chancellor for Extended Academic Programs. Response greetings came from Dr. Susan Friel, former Director of MSEN and Expectations for the Day from Dr. Joyce Hilliard-Clark, Associate Director for MSEN Pre-College Programs.

Ms. Shelia Hinson, MSEN Pre-College Coordinator at UNC-Charlotte, gave instructions for a day of competition, workshops, and outstanding tours. The theme for the day "Enhancing Our Lives Today and Tomorrow through Mathematics and Science" was further developed by students in the posters they created, their oratorical presentations, and their writing competitions. Students competed at all levels of science and mathematics from sixth grade mathematics and science to calculus and physics. Using popsicle sticks, teams of students from each Pre-College site built bridges and submitted their best bridge for competition which included testing how much weight it could hold. Students were well prepared, excited, and full of nervous energy. The day ran smoothly due to the organizational skills of Ms. Hinson and her staff, professors, parents, exam proctors, test scorers, workshop presenters, and tour guides. Countless hours were put into the preparation of the successful day from staff and volunteers and in the end the MSEN Pre-College students were all winners.

The day concluded with the awards program during which Mr. Derrick Tabor, of Johnson C. Smith University gave a very powerful motivational speech. In addition, the oratorical winners gave their speeches and all contest winners were recognized with first, second, and third place medals. Every site had winners.

Everyone involved had a memorable day. The hard work and months of preparation were rewarded with a smooth, winner-filled day. MSEN Day 1995 was an overwhelming success.

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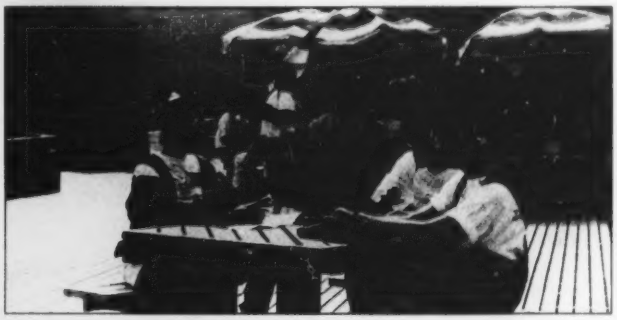

John Kalarickal, Sree Chavali, Chetan Patel, Nitesh Patel, Undergraduate students, Wave propagation, gravitational force, escape velocity using a dart gun, UNC-Chapel Hill
David Caldwell, Jr., Deputy Sheriff, Dept. of Corrections
Eric Packenham, Coordinator MSEN Program, Genetic Facts & Fallacies, UNC-Chapel Hill
Ben Carson, Spring 95 Health Professionals Forum
Patricia Kirkley, Career Counselor, Riverside High School
Riverside High School 1st Annual Cultural Diversity Fair
Duke Medical Center
Larry Keith, UNC school of Medicine Administrator
Charles Johnson, Optician Technician, NC Eye Donor & Transplant
Earl Everette, Bacteriologist, Duke University Medical Center
Manju Rajendran, Freshman, Importance of MSEN, Chapel Hill High School
Donald Robinson, Sophomore, Values and Expectations of College, Methodist College
Stan Chambers, Maintenance Engineer, Chapel Hill-Carrboro Schools
Sherry Smith, Educator, Culbreth Middle School
Carl Foxx, District Attorney, Orange County
UNC Hospital - Blood Bank, Blood Lab, Chemistry Lab & Occupational Therapy
Donald McCoy, Electrical Engineer, IBM Corp.
Karen Champion, John O'Neal, Lisa Fabricant, UNC Law Students
Ray Aponte, Curtis Bowie, Erin Worix, Gerald Shepard, Physical Assistants, Durham, NC
Mary Lyons, Writer, Teacher, Charlottesville, VA
Rod Chappel, Duke University MBA Student
Paul Jackson, Pharmaceutical Sales, Gluctrolx
Larry Geter, Computer Programmer, BNR Inc.
Nicour K, Stephanie Merritt, Keith Bostic, Jason Davis, Trochanis, Former Chapel Hill High School Students: College Life and High School Preparation

Field Trips

Baltimore, Maryland
- Baltimore Aquarium
- Great Blacks in Wax Museum

Washington, D.C.
Virginia
- Potomac Mills

Pennsylvania
- Indian Echo Caverns
- Hershey Amusement Park
- Hershey Chocolate Factory
- Independence Hall, Liberty Bell, Congress Hall
- Dave & Busters Entertainment Complex
- Lincoln University
- University of Pennsylvania
- Temple University
- Franklin Institute Science Museum
- Penn's Landing

New Jersey State Aquarium
Alabama Space Camp – Huntsville, Alabama
Durham
- Duke University – "Five Guys named Moe" play
- Museum of Life & Science
- Durham Rest Home
- Duke Primate Center
- Durham County Public Library – Martin Luther King, Jr. Program
- Duke University – Ballet & Alvin Ailey Dance Troupe
- Stagville Center
- NC School of Science & Math
- Jurassic Basin of Durham – Geology field trip
- NC Central University – College Day Program
- NC Museum Of Natural Science
- Freedom Ride – NCCU and St. Joseph AME Church
- Kyoto's Japanese Steakhouse

Tryon Place, New Bern, NC
Chapel Hill
- UNC Fetzer Gym – Sports Medicine
- UNC Hospital – Air Care (helicopter) & Emergency Room
- UNC Martin Luther King Jr. Celebration
- UNC-Chapel Hill Medical School
- Chapel Hill High School Musical Production "Purlie"
- Ackland Art Museum
- Phillips Middle School
- NC Botanical Gardens
- Sewall Elementary

Raleigh
- NCSU Materials Science & Engineering
- NCSU Theatrical Department
- Shaw University
- St. Augustine's College

Children Home of Oxford
Fayetteville State University
Science on Wheels
Expanding Your Horizons Conference
Research Triangle Park
- MCNC
- National Institute Of Environmental Health Sciences
- Kobe Steel

NC Aquarium, Wilmington
Morehead Planetarium

Leadership Retreat

On a cold, rainy weekend, October 20-21, 1995 over 50 MSEN Pre-College students, workshop leaders, coordinators, and parents gathered for the Third Annual MSEN Pre-College Leadership Retreat at the beautiful Betsy Jeff Penn 4-H Camp in Reidsville, NC to "Take a Step in the Right Direction," the theme for the weekend. An intense evening session provided students with opportunities to network, make new friends, and discover their personal leadership style. After an outstanding key-note address "Negotiating to Win in Science/Math Classes," the students from each site provided the entertainment, sharing their musical and creative talents for all those present. The rain stopped just long enough for the traditional bonfire, marshmallow roast, and story-telling session. The close camaraderie and friendships helped to dispel the cold, damp, wetness of nature.

After breakfast, the Saturday morning plenary session, "Leaders as Risk-Takers in Mathematics and Science," set the tone for the rest of the day. The Saturday break-out sessions covered pertinent issues facing leaders and allowed students to enhance their leadership skills through various activities.

The afternoon closing ceremony in which the MSEN light was passed from student to student was powerful as well as emotionally moving. Students challenged each other to accept the responsibility to maintain the *Standard of Excellence* required to participate in MSEN. Everyone left feeling proud, motivated, inspired, and excited to serve and be a part of MSEN. The Pre-College Coordinators played a key role in the success of the Leadership Retreat. The participant feedback suggested that the retreat last longer and be held biannually.

The William Randlolph Hearst Foundation Pre-College Endowment

In 1994, the Hearst Foundation of New York awarded the MSEN Pre-College Program a $100,000 investment to be turned into an on-going endowment to establish the William Randolph Hearst Endowment Fund for the Mathematics and Science Education Network Pre-College Teacher Training Program. The Hearst Endowment has been invested through the University of North Carolina and the annual interest will be used to support the professional development component of the MSEN Pre-College Program.

Teachers in the Pre-College Program have contact with over 3,000 North Carolina students through special MSEN in-school classes in the middle schools, academic clubs in the high school, five week summer camps, and approximately 12 Saturday Academies during the academic year. Because the Pre-College Program emphasizes the affective as well as the academic development of the students, it is necessary for the teachers to be trained on the building of self-esteem and achievement. This is an ongoing process since there are new teachers to the program each year and because it is important to keep teachers aware of nationally recommended changes in mathematics and science pedagogy.

MSEN will activate the endowment starting during the fall of 1996 to support on-going professional development of Pre-College teachers. The endowment of $100,000 will produce approximately $10,000 a year in interest and will be sufficient to support approximately 90 teachers in a full day or two half-day workshops.

UNC MSEN

Pre-College Program Teachers

Elizabeth City State University

Cheryl Baker
Miriam Hoggard
Ronnie Hopkins
Evainia Jones
LaVern Jones
Terolyn Knight
Lois Lassiter
Tonya Little
Alicia Palmer
Betty Parker
Alicia Small
Reginald Wilkins
Jorice Williams

Fayetteville State University

Valoria Bass
Valerie Cox-Washington
Wilma Godwin
Leslie Holt-Teasley
Norma Jones
Debora McPhaul
Christopher McIver
Annie Owens
Denise Payton
Petrilla Poe
Lorraine Price
Hopella Renwick
Ilyas Renwick
Marria Robinson
Cynthia Sumpter
Sherman Sumpter
Ethel Williams
Linda Williams

North Carolina A&T State University

Aebeyo Abrha
Johanna Bridges
Stephanie Carter
Gloria Carver
Branda Cobbs
Gary Hardings
Barbara Hill
Fernandez Johnson
Ricky Lewis
Barbara McGill
Jeanette Moore
James Pressley
Georgia Richardson
April Rhinehardt
Linda Rogers
Dorothy Walker
Deborah Williams
Edgar Zimmerman
Stacey Zimmerman

North Carolina State University

Stacey Alford
Valencia Bailey
Kim Barritt
Jeanette Boone
Christopher Bryant
Chris Clayton
William Clayton
Jackie Dove-Miller
Faye Dunn
Kristen Eyerman
Genevieve Farmer
Doris Frazier
Mattie Goode
Catherine Hall
Ann Hunt-Smith
Leonard Hunter
Suzette Jordan
Martha Kearney
Paulette Mack
Glenda Murray
Cynthia Neal
Shirley Payne
Tau Tembo
Brenda Thomas
Rose Thomas
Pauline Vandergrift
Omeba Walker
William Walker
Robert Wall
Corey White
Rezelle Williams

University of North Carolina-Charlotte

Husam Adodaka
Denise Artis
Mary Barrett
Gail Clark
Scott Denning
William Dingle Jr.
Joyce Dunlap
Kipp Fields
Barbara Goode
Deena Hawkins
Gail Headley
Maxine Hedgepath
Laura Karriker
Elaine King
Jan Lanning
Glena Nance
Edward Oberhofer
Susan Oberhofer
Jesse Rollins
James Sanders, Sr.
Arthur Tucker

University of North Carolina-Chapel Hill

Rose Alston
Anthony Bounaquisti
Terecia Brown
Veda Cook-Hayes
Joe Edun
John Greene
Dreda Guion
Carolyn Harris
Deloris Harris
Jessica Harris
Gerald Hatcher
Retella Jones
Jai Joyner
Tom Lewis
Barbara Lord
Kim Mayo
Hilda Parler
Marrius Pettiford
Juanita Pollard
Dee Priester
Charlene Rogers
Enid Smith
Travis Taylor
Quanda Turner
Connie Scott
Carolyn Wallace
Joyce Wiggins
Lawana Williams

MSEN Pre-College Student Awards and Achievements

Howard Ervin, ECSU	NCSSM
Amanda Lawrence, ECSU	NCSSM
Elizabeth Martin, ECSU	NCSSM
Christopher Shelton, FSU	Teaching Fellows Scholarship Recipient
Byron Alford, NC A&T	Elon College Athletic Scholarship
Deborah Alford, NC A&T	Eunice Lewis Scholarship
Aisha Broadnax, NC A&T	Las Amigas, Inc Scholarship
Jamil Burnett, NC A&T	Greensboro Jaycees
Quintana Clinard, NC A&T	NC Nurse Scholars Program
Rita Davidson, NC A&T	Dudley Products Scholarship, Chancellor's Scholarship, Joseph & Kathleen Bryan Scholarship
Cherie Hipps, NC A&T	Full Scholarship – UNC-Chapel Hill
Ali Miller, NC A&T	Minority Presence Grant for High Achieving African-American Students
Michal Philips, NC A&T	Johnson & Wales Academic Scholarship, Presbyterian Church USA Student Opportunity Scholarship
Carla Scotton, NC A&T	Delta Sigma Theta Sorority
Phylisha Stewart, NC A&T	Full Scholarship – Greensboro Kidney Center
Andre Curtain, NC A&T	Joseph and Kathleen Byran Scholarship
Lessie Anderson, NCSU	Teaching Fellows, UNC-Chapel Hill
Taunya Bailey, NCSU	Alumni Scholarship, Broughton High School
Alicia Barfield, NCSU	Century Award, Scholastic Achievement Award, Zeta Phi Beta Sorority, Alpha Kappa Alpha Sorority, American Business Women, East Wake Chapter, UNC-Chapel Hill
Dekhasta Becton, NCSU	Alpha Kappa Alpha Sorority, UNC-Chapel Hill
Michelle Grott, NCSU	Full Tuition & Fees, UNC-Wilmington
Tika Hood, NCSU	Chancellor's Scholarship, Zeta Phi Beta Sorority
Jumoke Ladapo, NCSU	Carswell Scholarship, Pogue Scholarship, Sherwood Scholarship of Junior Science & Humanities Symposium, Gunice Riggins Memorial Scholarship, John B. Ervin Scholarship, National Achievement Scholarship, Wake Forest University
Corey May, NCSU	Winston-Salem State Univ.
Biri Oguah, NCSU	Pogue Scholarship, UNC-Chapel Hill
Adrienne Perry, NCSU	American Chemical Society Scholarship, Alpha Kappa Alpha Sorority
Ronnie Rucker, NCSU	Minority Presence Scholarship, Kappa Alpha Psi Fraternity
Cherise Thomas, NCSU	Alpha Kappa Alpha Sorority, Zeta Phi Beta Sorority, UNC-Greensboro
Javonah Weeden, NCSU	Ford Scholarship
Tiffany Stephens, NCSU	Elon College
Reginald Blackwell, UNC-C	Band Scholarship
Sarah Costantino, UNC-C	Sen. Byrd Scholarship, Watson Scholarship
Hope Ghorley, UNC-C	West Mecklenburg PIE Scholarship
Tarleisha Gray, UNC-C	Western Carolina Grant, Incentive Scholarship
Tara Lowery, UNC-C	Incentive Scholarship
Jemar Mack, UNC-C	Presbyterian Scholarship
Toniska McKinney, UNC-C	Track Scholarship
TaiAisha Milton, UNC-C	National Colonial Dames Scholarship, Sally Southall Cotton Scholarship, Minority Presence Scholarship
Phissandra Sabb, UNC-C	Winston Salem State Univ.
Tara Thomas, UNC-C	PTA Scholarship
Alafia Thompson, UNC-C	Track Scholarship
Natashia Young, UNC-C	Minority Presence Grant
Lynkka Bynum, UNC-CH	Triangle Educational Advancement Foundation
Tamara Campo, UNC-CH	Delta Sigma Theta Sorority
Christy Carter, UNC-CH	Four Year Incentive Scholarship - WSSU
Chaundra Covington, UNC-CH	Durham Retired School Personnel
Alex George, UNC-CH	Delta Sigma Theta Sorority
Teresa Green, UNC-CH	Delta Sigma Theta Sorority
Mario Johnson, UNC-CH	Durham Engineers Club
Shannika McDougal, UNC-CH	C.L. May, Jr – Kiwanis Club
Taurus Wallace, UNC-CH	Ebonette Club - Alpha Kappa Alpha
Marella Mangum, UNC-CH	Eagle Scholarship, NCCU
Khaleelah Mueed, UNC-CH	Quaker Oats Youth of Tomorrow
Charryse Fredrick, UNC-CH	Phi Beta Kappa Teaching Scholarship
Benjetta Tharrington, UNC-CH	Engineering Scholarship – Durham Public Schools

UNC MSEN

1995 Pre-College Program Graduate Survey

An important part of MSEN's mission is increasing the number of minorities and females prepared to major in mathematics- and science-related fields. Surveying MSEN graduates with regard to their college enrollment and academic majors is one method of ascertaining the program's success in achieving this goal.

In a follow-up survey completed in the fall of 1995, MSEN researchers were able to contact numerous students who had participated in the Pre-College Program and graduated from high school in the classes of 1991, 1992, 1993, and 1994 with 62 students responding to the survey (Table 2a). 1995 Pre-College graduates responded to a senior survey, with 134 completing the survey.

Table 2a
1995 Annual Pre-College Graduate Survey

Total Number of Responses = 62 graduates

	No.	%
Engineering Majors	17	27
Math/Science-Related Majors*	47	76
Plan to Pursue:		
Master Degree**	54	87
Ph.D.	12	19
Higher Degree in Math or Science	36	58

* Includes Engineering majors
** Includes professional degrees (e.g. medical and law school)

Across all four cohorts, 95 to 100 percent of the students contacted reported that they were currently enrolled in college (Table 2a). Additionally, substantial percentages of those attending college were majoring in mathematics- or science-related fields (Table 2b). Of those who graduated in 1991, 44 percent reported majoring in a mathematics- or science-related field. Among the 1992 graduates, 58 percent had chosen a mathematics- or science-related major, while 73 percent of the 1993 graduates chose such majors. For 1994, the most recent graduating class, 65 percent had a mathematics- or science-related major.

Table 2b
1995 Pre-College Program Graduates

Total Number of Students = 134 (answering survey)

	No.	%
Plan to Major in: Engineering	22	16
Math/Science Related Fields*:	91	68
Biology	18	13
Chemistry	5	4
Computer Science	13	10
Mathematics	3	2
Other Science-Related Fields	30	22
Plan to Pursue**:		
Master Degree***	85	65
Ph.D.	33	25
Higher Degree in Math or Science	55	42
Plan to attend 4 year institution:	131	98
Accepted to 4 year institution (at time of survey)	117	87

* Includes Engineering
** Taken out of 131 students, 3 were not asked on survey
*** Includes professional degrees (e.g. medical and law school)

1995 MSEN Pre-College Graduates

NAME (BY SITE)	UNIVERSITY	MAJOR
Fayetteville State University		
Kevin Bettis	West Point Prep. School	Electrical Engineering
George Coney, Jr.	NC A&T State University	Engineering
Karel Cummings	Fayetteville State University	Computer Science
William Douglas	NC A&T State University	Computer Science/Mathematics
Tonika Gadsden	NC State University	Pre-Medicine
Shandreika Hockaday	UNC-Chapel Hill	Chemical Engineering
Michael Lowery	Winston Salem State University	Physical Therapy/Pharmacy
Yasmin Mathlin	UNC-Chapel Hill	Pre-Medicine
Marco Moreno	Air Force Academy	Computer Science
Maina Noel	NC A&T State University	Electrical Engineering
Lateefah Peoples	NC State University	Pre-Medicine
Christopher Shelton	NC A&T State University	Elementary Education
North Carolina A&T State University		
Byron Alford	NC A&T State University	Psychology
Deborah Alford	Wake Forest University	Pre-Medicine
Curtis Allen	NC A&T State University	Architectural Engineering
Beanca Armstrong	NC A&T State University	Chemical Engineering
Carlos Autry	NC A&T State University	Business
K. Aisha Broadnax	UNC-Chapel Hill	Biology
Jamil Burnett	NC A&T State University	Architectural Engineering
Quintana Clinard	East Carolina University	Nursing
Jarian Collins	NC A&T State University	Agriculture
Andre Curtain	NC A&T State University	Architectural Engineering
Rita Davidson	NC A&T State University	Chemistry
Kysha Foster	NC State University	Pre-Veterinary Medicine
Terrance Goldston	Morehouse College	Business & Finance
Jason Hardin	UNC-Chapel Hill	Biology/Pre-Medicine
Richard Harper	Florida A&M	Mechanical Engineering
Cherie Hipps	UNC-Chapel Hill	Biology
Vickie Holloway	NC State University	Pre-Law
Candice Hughes	King's College	Business
Jermaine Hynson	NC A&T State University	Commercial Art
Gilbert Jackson	NC A&T State University	Political Science
Christopher Jefferies	NC A&T State University	Engineering
Clarissa Johnson	NC A&T State University	Computer Science
Marcus Martin	Fayetteville State University	Psychology
Yolanda McDowell	NC Central University	Criminal Justice
Kristie Mebane	Winston Salem State University	Political Science
Corey Merriman	NC A&T State University	Psychology
Keisha Miles	Campbell University	Pre-Law
Ali Miller	UNC-Charlotte	English Education
Marcia Moore	NC A&T State University	Biology
Ainsley Owens	NC Central University	Criminal Justice
Tori Padgett	Elizabeth City State University	Accounting
Michael Philips	South Carolina State University	Business Administration
Carla Scotton	NC A&T State University	Biology
Antonio Smith	Navy	Medicine
Maurice Smith	NC A&T State University	Mathematics
Phylisha Stewart	UNC-Greensboro	Nursing
Torria Wall	Pfeiffer College	Physical Therapy
Krystal Wilson	UNC-Charlotte	Biology
Tasha Woods	Forsythe Technical	Radiology
Adrian Wright	Elizabeth City State University	Mathematics
Harriet Alston	NC State University	Psychology

NAME (BY SITE)	UNIVERSITY	MAJOR
North Carolina State University		
Lessie Anderson	UNC-Chapel Hill	Mathematics
Tamara Bailey	UNC-Chapel Hill	Music
Taunya Bailey	NC State University	Biomedical Engineering
Michael Baker	UNC-Chapel Hill	Biochemistry
Tisha Baker	NC A&T State University	Political Science
Angel Ballentine	Winston Salem State University	Physical Therapy
Alicia Barfield	UNC-Chapel Hill	Pharmacy
Dekhasta Becton	UNC-Chapel Hill	Pre-Law
Emily Bickram	NC State University	Pre-Medicine
Shaneka Bizzell	NC Central University	Pre-Law
Melvin Blackwell		
William Bond	NC A&T State University	Undecided
Imani Brooks-Wheeler	Hampton University	Broadcasting
Andre Burton	NC A&T State University	Biology
Jennifer Chetham-Smart	Wake Technical College	Nursing
Renee Cross	NC State University	Animal Science
Natasha Dunn	St. Augustine's College	Undecided
Kristi Dunston	Winston Salem State University	English
Chi Chi Ekwuribe	UNC-Chapel Hill	Pharmacy
Lakesha Evans	Wake Technical College	Undecided
Clarissa Goodlett	Georgia Tech	Engineering
Michelle Grott	UNC-Wilmington	Marine Biology
Freda Halls	NC State University	Undecided
Jewel Hargrove	NC A&T State University	Mechanical Engineering
Jennifer Hayes		
Tika Hood	Winston Salem State University	Physical Therapy
Sawida Kamara	Virginia Commonwealth University	Undecided
Jumoke Ladapo	Wake Forest University	Biology
Martina Lee	Campbell University	Pharmacy
Corey May	Winston Salem State University	Physical Therapy
Syreeta McDuffey	St. Augustine's College	Undecided
Rasha Mohamed	NC A&T State University	Psychology
Lecia Montague	NC A&T State University	Business Management
Liza Montague	NC A&T State University	Business Management
Shanda Murray	UNC-Greensboro	Biology
Tiffani Neal	Meredith College	Undecided
Biri Oguah	UNC-Chapel Hill	Accounting
Adrienne Perry	UNC-Greensboro	Elementary Education
Troy Pinder	NC State University	Pre-Medicine
Angela Pope	NC Central University	Undecided
Miiko Richardson	UNC-Chapel Hill	Undecided
Ronnie Rucker	UNC-Charlotte	Business Management
Damion Sledge	NC State University	Communication
Carmine Spinks	NC State University	Pre-Medicine
Tiffany Stephens	Elon College	Sports Medicine
Antonio Taylor	UNC-Greensboro	Business Administration
Cherisse Thomas	UNC-Greensboro	Biology
Cindy Walters	UNC-Greensboro	Criminal Justice
Chioke Ward	NC A&T State University	Computer Science
University of North Carolina at Chapel Hill		
Eshe Allen	Spelman College	Geology
Collette Alston	NC A&T State University	Mathematics
Lesley Archer	NC State University	Computer Science
Kalena Bailey	UNC-Chapel Hill	Pre-Medicine

NAME (BY SITE)	UNIVERSITY	MAJOR
University of North Carolina at Chapel Hill (continued)		
Richard Barbee	Duke University	Mathematics
Kedar Bashir	NC A&T State University	Journalism
Kenisha Bethea	UNC-Charlotte	Elementary Education
Tracy Blackwell	UNC-Greenboro	Mass Communications
Chad Boyd	UNC-Chapel Hill	Journalism
Renne' Bryant	Dartmouth College	Computer Science
Colette Bullock	UNC-Greensboro	Biology
Lynnikka Bynum	St. Paul's College	Chemistry
Juanica Byrd	St. Augustine's College	Elementary Education
Camelai Campbell	NC Central University	Mathematics
Tamar Campo	Howard University	Mass Communications
Christy Carter	Winston Salem State University	Elementary Education
Alicia Clapp	UNC-Charlotte	Chemistry
Morris Clark, Jr.	NC A&T State University	Chemistry
Mimi Coker	University of Virginia	BioGenetic Engineering
Chaundra Covington	Winston Salem State University	Journalism
Lynette Davis	UNC-Greensboro	Physiology
Randy Delgado	UNC-Charlotte	Mathematics
Ryan Dubose	NC State University	Physics
Dwight Dunlap	NC A&T State University	Engineering
Michael Eley	Hampton University	Graphic Arts
Bryan Evans	ECPI	Electronics
Chamik Faulkner	UNC-Greensboro	Pre-Medicine
Charryse Fredrick	UNC-Charlotte	Education
Jamiyl Gains	University of Tenn-Knoxville	Chemistry
Colena Gardner	UNC-Greensboro	Public Health
Alex Goorge	University of Connecticut	Biology
Monica Graham	Livingston College	Chemistry
Teresa Green	NC A&T State University	Education
Lamont Grissom	UNC-Chapel Hill	Computer Science
Steve Harrington	NC A&T State University	Engineering
Michelle Harris	NC A&T State University	Biotechnology
Eric Harvey	NC A&T State University	Mathematics
Warner Heartwell	Hampton University	Mathematics
Marisa Hembrick	NC A&T State University	Astronomy
Darnell Henderson	Southern University	Computer Science
Allen Hill	DeVry Institute	Technology
Tallulah Holmes	St. Mary's College	Physics
Shawnada Horne	NC A&T State University	Education
Mario Johnson	NC State University	Chemistry
Derrick Jones	Shaw University	Religion
Juane Jones	NC A&T State University	Engineering
Melandee Jones	UNC-Charlotte	Education
Portia Jones	NC A&T State University	Biology
Josephine Kerr	NC A&T State University	Biology
Tymissha King	UNC-Chapel Hill	Pre-Medicine
Alv'etta Kingsberry	NC A&T State University	Environmental Science
Alisha Lee	Penn State University	Mathematics
Angela Lee	Fayetteville State University	Mathematics
Don Lilly	Appalachian State University	Computer Science
Tracy Lloyd	Pitt Community College	Business Administration
Tondra Manning	Campbell University	Pharmacy
Crystal Martin	NC Central University	Education
Crystal Mason	NC State University	Chemical Engineering
August McConnell	NC State University	Textile Engineering
Shannika McDougald	NC A&T State University	Biology
Franchesca Meachem	Pitt Community College	Business Administration

NAME (BY SITE)	UNIVERSITY	MAJOR
University of North Carolina at Chapel Hill (continued)		
Larissa Mebane	UNC-Charlotte	Education
Morrai Merriitt	Bennett College	Elementary Education
Loylynn Miller	UNC-Greensboro	Biochemistry
Jimi Moses	NC A&T State University	Computer Science
Khaleelah Mueed	NC A&T State University	Biology
Jaive Peaks	Pitt Community College	Business Administration
Jeffrey Quick	Hampton University	Chemistry
Rosettta Robinson	Hampton University	Computer Science
Nicole Rose	NC A&T State University	Engineering
Shakella Rowland	Tennessee State University	Genetics
Joylanda Simuel	Winston-Salem State University	Journalism
Jami Singletary	UNC-Greensboro	Biology
Tinera Slappy	Pembroke State University	Technology
Natalie Smith	East Carolina University	English
BenJetta Tharrington	NC State University	Engineering
Guila Todd	Hampton University	Journalism
Stephanie Vickers	UNC-Charlotte	Journalism
Rashad Watters	Hampton University	Anatomy
Bisma Whack	Wake Forest University	Accounting
Frances White	Durham Tech	Photography
Anita Williams	UNC-Chapel Hill	Biology
Artesiah Williams	UNC-Greensboro	Geology
Michelle Williams	Winston-Salem State University	Elementary Education
University of North Carolina at Charlotte		
Chris Alexander	UNC-Greensboro	Computer Science
Charmaine Bankhead	Kings College	Medical Technology
Reginald Blackwell	Morehouse College	Law
Anna Cofield	Central Piedmont Community	Social Work
Sarah Costantino	UNC-Chapel Hill	Pharmacy
Omar Cummings	UNC-Wilmington	Undecided
Monique Duff	UNC-Charlotte	Accounting
Monica Fuller	NC A&T State University	Communications
Hope Ghorley	Appalachian State University	Sports Medicine
Tarleisha Gray	Western Carolina University	Computer Science
Kunta Gregg	Winston-Salem State University	Education Administration
Joslyn Hilliard	NC State University	Biology
Mitchell Johnson	NC A&T State University	Business Management
Tara Lowery	NC Central University	Business Administration
Tiffany Lunn	NC State University	Biology
Jemar Mack	Western Carolina University	Undecided
Toniska McKinney	Pembroke State University	Political Science
TaiAisha Milton	UNC-Chapel Hill	Physical Therapy
Trevor Parker	Winston-Salem State University	Business & Finance
Jason Pressley	Western Carolina University	Computer Science
Larry Rice	NC Central University	Mass Communications
Bresha Robinson	NC Central University	Undecided
Bennie Russell	NC Central University	Mass Communications
Phissandra Sabb	Winston Salem State University	Pharmacy
Roy Sowell	UNC-Greensboro	Physical Therapy
Tara Thomas	NC State University	Industrial Engineering
Alafia Thompson	Pembroke State University	Computer Science
Shannon Varner	NC State University	Pre-Medicine
Quinton Williams	NC State University	Engineering
Natashia Young	UNC-Charlotte	Computer Science

Future Plans

Given the current environment that we are operating in, the MSEN Pre-College Program is being challenged to serve more students with less funding and resources. The cost of serving our target population is escalating and we are being forced to become more creative in addressing the rapidly expanding needs. Therefore, our major goal is to seek additional resources through grant writing, corporate sponsorship, and state funds to continue and expand supporting the number of underrepresented students who pursue mathematics- and/or science-based fields of study at the post-secondary level. To accomplish our mission, we plan:

- to provide a consistent professional development program for Pre-College teachers;
- to provide support to Pre-College students during the transition period from middle to high school to decrease attrition;
- to study the impact of the Pre-College program regarding student choice of careers after graduation from high school;
- to encourage Pre-College students to participate in a variety of mathematical and science competitions;
- to expand Pre-College programming to serve more rural, economically disadvantaged and other underrepresented students;
- and, to publicize the Pre-College program achievement.

Crucial work is ahead, securing resources for MSEN Pre-College Program projects is a venture that must be shared by all, including parents, school systems, industry, and government. Your partnership, interest, participation, and your continuous support are needed now more than ever to assist in building the technical workforce the world will need in the next millennium.

Funding Sources

Primary Funding Sources

National Aeronautics & Space Administration

National Science Foundation

North Carolina General Assembly

U.S. Department of Energy

Z. Smith Reynolds Foundation, Inc.

U.S. Department of Education

Eisenhower Program

American Chemical Society

N.C. Department of Instruction

The William Randolf Hearst Foundation

The Burroughs Wellcome Fund

Contributing Funding Sources

Burlington Industries Foundation

Cabarrus County Schools

Ciba-Geigy Grants for Students

General Motors Foundation

Kannapolis City Schools

Lincoln County Schools

N.C. Science and Mathematics Alliance

Participating School Systems – Transportation

PIE Clubs (ECSU, FSU, NC A&T, NCSU, UNC-CH, UNC-C)

UNC Mathematics and Science Education Pre-College Sites

MSEN operates six Pre-College sites across the state. (+ denotes Education Center with Pre-College Program site; * denotes Pre-College Program site only.)

Elizabeth City State University *
MSEN Pre-College Program
Pre-College Coordinator: Leon Rouson
Campus Box 718
Elizabeth City, NC 27909
(919) 335-3409
email:rousonl@alpha.ecsu.edu

Fayetteville State University +
Mathematics and Science Education Center
Director: Leo Edwards
Pre-College Coordinator: Patricia Murray
328 School of Business and Economics
Fayetteville, NC 28301
(910) 486-1669
email: ledwards@hazel.fsufay.edu

North Carolina A&T State University/ UNC-Greensboro +
Greensboro Area Mathematics and Science Education Center (GAMSEC)
Director: Vallie Guthrie
Pre-College Coordinator: Rita Fuller
North Carolina A&T State University
217 Marteena Hall
Greensboro, NC 27411
(910) 334-7938
email: gamsecm@diana.ncat.edu

North Carolina State University +
Center for Research in Mathematics and Science Education
Director: Sarah Berenson
Pre-College Coordinator: Carolyn Tyson
315 Poe Hall, Box 7801
Raleigh, NC 27695-7801
(919) 515-2013
email: crmse@poe.coe.ncsu.edu

UNC-Chapel Hill +
Center for Mathematics and Science Education
Director: Russell Rowlett
Pre-College Coordinator: Eric Packenham
309 Peabody Hall, CB#3500
Chapel Hill, NC 27599-3500
(919) 966-5922
email: cmse@email.unc.edu

UNC-Charlotte +
Mathematics and Science Education Center
Director: Josephine Wallace
Pre-College Coordinator: Shelia Hinson
303 Kennedy Hall
Charlotte, NC 28223
(704) 547-4838
email: comet@unccvm.uncc.edu

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